

# Organ Pipe Cactus

National Park Service  
U.S. Department of the Interior

Organ Pipe Cactus National  
Monument, Arizona



## Environmental Assessment May 2003



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## Visitor Center Area Parking and Roadway Modifications

Organ Pipe Cactus National Monument • Arizona



## United States Department of the Interior NATIONAL PARK SERVICE

In reply refer to:  
ORPI (59592)

Dear Friend of Organ Pipe Cactus National Monument,

Enclosed is an environmental assessment prepared by the National Park Service for a proposed project to modify the visitor center parking area at Organ Pipe Cactus National Monument, and the entrance/exit roads leading to the visitor center. Issues regarding increasing visitation, visitor safety, and other factors have prompted the need for the proposed action to reduce traffic congestion, provide safe vehicle/pedestrian access and circulation, and improve the sense of arrival and orientation for visitors coming to the monument. Two alternatives are considered in the environmental assessment:

- 1) The no-action alternative describes the continuation of present NPS management operations and existing conditions as a basis for comparing the environmental consequences of the proposed action. It does not imply or direct discontinuing present actions or removing existing uses, development, or facilities.
- 2) Consistent with the monument's 1998 General Management Plan, the proposed action includes expansion and reconfiguration of the visitor center parking area; closure and revegetation of the current entrance road; construction of a single combined entrance/exit road southeast of the visitor center; removal of the existing traffic island and construction of two new traffic islands; and construction of walkways and sidewalks in the visitor center area.

### Public Comment

If you wish to comment on the environmental assessment, you may mail comments to the name and address below. This environmental assessment will be on public review for 30 days from the date of this letter. Please note that names and addresses of people who comment become part of the public record. **If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment.** We will make all submissions from organizations, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Bill Wellman, Superintendent  
Organ Pipe Cactus National Monument  
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# PURPOSE AND NEED

The purpose of the proposed project is to provide a safe parking area and access road at the Organ Pipe Cactus National Monument (OPCNM) visitor center for the benefit of all users (motorists, bicyclists and pedestrians). The proposed project is needed to reduce congestion and impacts to visitors and resources resulting from the currently inadequate parking and roadway facilities.

The visitor center is located about 5 miles north of the International Boundary between the United States and Mexico (see attached map on page 2). The visitor center orients visitors to the Sonoran Desert and National Park Service (NPS) facilities, and enhances the experience of those visiting the monument. The visitor center is located on a one-way loop roadway, just a few hundred feet west of Arizona Highway 85, a two-lane highway that bisects the park. A map of the existing visitor center, parking area and access roads is provided.

The existing visitor center at OPCNM was built in 1957 as part of the NPS servicewide Mission 66 program. Access and egress to the visitor center has remained essentially unchanged for 45 years. To access the visitor center, motorists turn west off of Highway 85 onto a one-way park road and proceed south to a parking area that is west of the visitor center (see maps). Egress is via a one-way road to the south of the visitor center. When originally constructed, the parking lot was one large, unpaved area without traffic islands. Later, a traffic island in the middle of the parking area was constructed and plantings were installed. The existing configuration accommodates up to 30 vehicles plus an additional 6-8 spaces parallel to the traffic island for longer vehicles such as buses, motor homes and vehicles towing recreational equipment. Two of these spaces provide accessibility to the visitor center for mobility-impaired visitors. The facilities were not designed to accommodate the existing and increasing number of visitors. Neither were the facilities designed to accommodate the many visitors now arriving in large and longer vehicles (e.g. motor homes or vehicles towing trailers).

The objectives of the proposed project are to:

- Improve visitors' sense of arrival and orientation.
- Enhance visual quality.
- Improve circulation and safety of vehicles and pedestrians.
- Better accommodate visitors with mobility impairments.
- Reduce traffic congestion during peak visitation.
- Provide additional parking spaces to accommodate increasing visitation.
- Provide appropriate and safe administrative and service access.

A planning team consisting of NPS and Federal Highway Administration representatives held internal scoping and planning sessions to prepare, review and comment on the alternative designs for the parking lot and roadway modifications. No public scoping meetings were held.

A programming charrette was held on October 19 and 20, 1999. Prior to the charrette, the staff received a pre-design questionnaire to elicit information from the staff. At the October meeting, three design concepts were presented to the staff for discussion. All alternatives were reviewed by the planning team on December 2, 1999. By consensus,

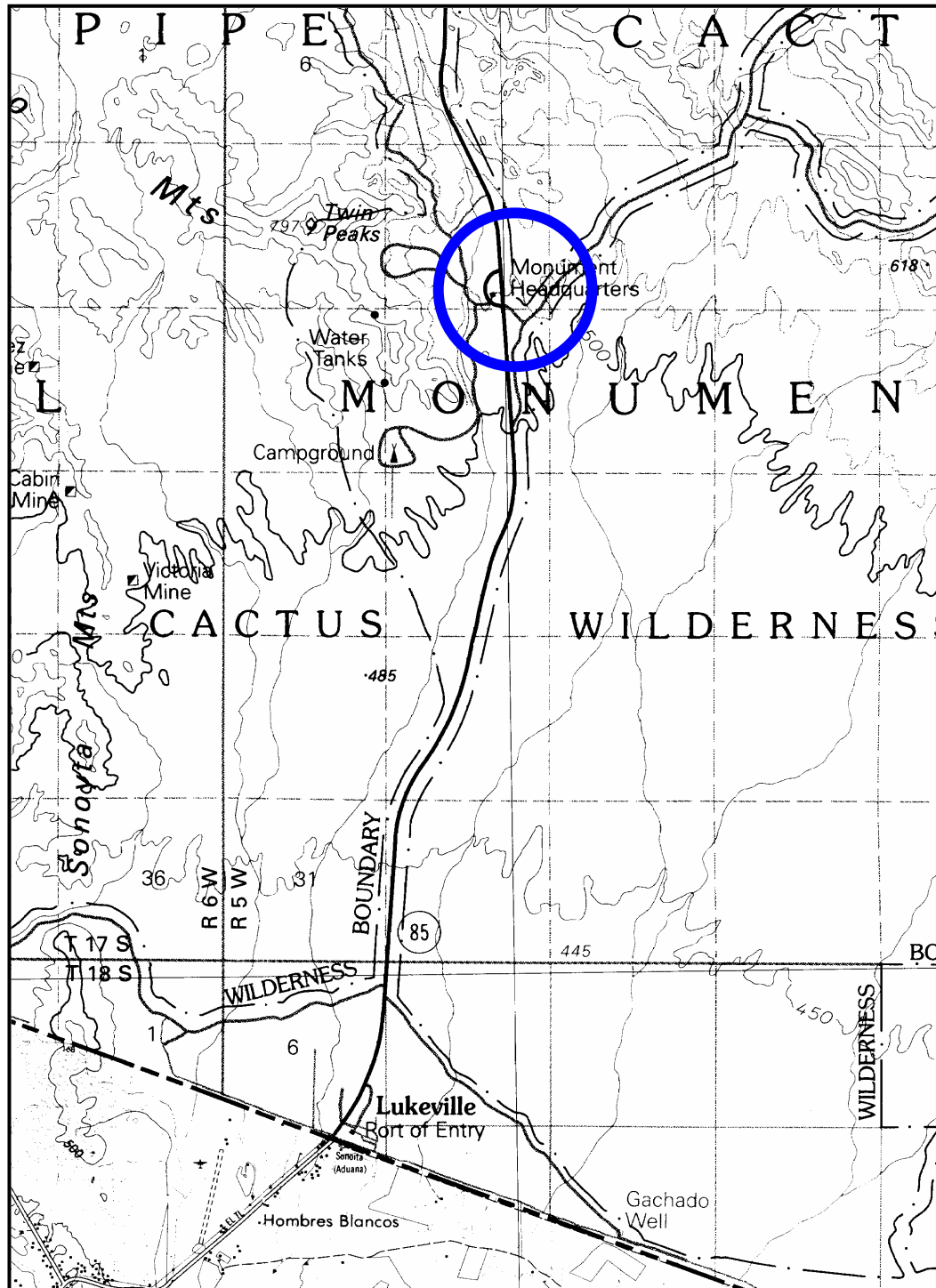


Figure 1. The visitor center (identified on map as 'Monument headquarters') at Organ Pipe Cactus National Monument is located to the west of highway 85, about 5 miles north of the U.S./Mexico International Boundary. Background: Lukeville, Arizona-Sonora, 30x60 minute topographic quadrangle (1994), U.S.G.S.

the planning team decided on one option that became the preferred alternative of this Environmental

Assessment.

## LEGISLATIVE MANDATES

This document has been developed consistent with national laws, regulations and NPS legal mandates. A review of these mandates and commitments is provided in this section.

Legislative mandates and special commitments include those measures that apply to the entire National Park Service, plus monument-specific requirements. The intent of all of the mandates and commitments is to establish sustainable conservation and to avoid impairment of NPS lands. As a result, visitor use can occur only to the extent that it does not impair the monuments resources and values.

The National Park Service and its mandates are authorized under the NPS Organic Act (16 USC 1) and the General Authorities Act (16 USC 1a-8). These acts direct the agency to conserve the scenery, the natural and historic objects, the wildlife, and to provide for the enjoyment of those resources in such a manner as to leave them unimpaired for future generations.

The National Environmental Policy Act (NEPA) is the basic national charter for environmental protection; among other actions it calls for an examination of the impacts on the components of affected ecosystems. The 1998 GMP (with supplemental EIS), 2001 NPS *Management Policies*, Director's Order 12 (*Conservation Planning, Environmental Impact Analysis, and Decision Making*); NPS-77 (*Natural Resources Management*), and the monument's 1994 *Resources Management Plan*, among other NPS and monument policies, provides general direction for the protection of the natural abundance and diversity of all the monument's naturally occurring communities.

Various agencies have been contacted and consulted as part of this planning and environmental analysis effort. Appropriate federal, state, and local agencies have been contacted for input, review, and permitting in coordination with other legislative and executive requirements.

## MONUMENT MISSION AND GOALS

OPCNM was established by presidential proclamation on April 13, 1937. The 330,689 acre (133,882 hectares) area was chosen to preserve and protect a representative part of the Sonoran Desert that contained organ pipe cactus (*Stenocereus thurberi*). As with all national parks and monuments, the mission of OPCNM is to "...conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner and such means as will leave them unimpaired for the enjoyment of future generations..." (16 U.S. Code section 1).

In 1976, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) designated OPCNM a biosphere reserve under the direction of the Man and the Biosphere Program. Biosphere reserves are protected examples of the world's major ecosystem types. Each reserve is devoted to the conservation of nature, scientific research and cooperation, and provides a standard against which human impact on the environment can be measured.

Most (more than 95%) of OPCNM was designated as wilderness in 1978 (Public Law 95-625). Wilderness is an area "...where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain..." and "...which is protected and managed so as to preserve its natural conditions..." (Public Law 88-577). Management of wilderness must comply with the Wilderness Act of 1966 and NPS wilderness management policies.

Based on the establishing proclamation, biosphere reserve goals, and wilderness designations, Organ Pipe Cactus NM has several purposes:

- \* Perpetuate for future generations a representative sample of the natural and cultural resources of the Sonoran Desert and provide for public understanding, use, and enjoyment of the same.
- \* Serve as a natural laboratory for understanding and managing the Sonoran Desert ecosystem.
- \* Serve as a baseline indicator against which environmental changes can be identified.
- \* Preserve for future use and enjoyment the character and values of this designated wilderness.

## ISSUES AND IMPACT TOPICS

Issues and concerns affecting this proposal were identified from past NPS planning efforts, environmental groups, and input from other state and federal agencies. The major issues are the conformance of this proposal with the 1998 GMP; natural resource issues including wilderness; special status species (threatened, endangered, species of concern, and designated critical habitats); recreational values; cultural (historic and archeological) resources; and impacts on monument operations. Based on existing information derived from previous research and development projects, the potential for construction-related impacts on these resources/topics resulting from implementation of the preferred alternative helped focus the analysis of the impact topics selected for consideration in this environmental assessment. Illegal border activities have also forced management decisions with regard to closing or restricting road access in several areas of the park. International issues will continue to be a growing problem with implications for the management of park resources.

The following issues and concerns were raised in preliminary discussions to re-design the visitor center entrance, exit and parking area:

1. Longer vehicles have difficulty maneuvering because existing turning radii are inadequate.
2. Circulation conflicts among motorists often arise that lead to confusion especially during peak visitation periods.
3. The parking area often reaches capacity (particularly for motor homes) during peak visitation periods.
4. Pedestrian movement is unsafe.
5. Administrative and service vehicle access to the visitor center needs improvement.
6. Road widths are inadequate.
7. Access for visitors with mobility impairments is inadequate.
8. The separate entrance and exit routes connecting the visitor center and Highway 85 are a source of visitor confusion.

## IMPACT TOPICS

Specific impact topics were developed for discussion focus, and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and Executive Orders; NPS *Management Policies (2001)*; project issues; and NPS knowledge of limited or easily impacted resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing other topics from further consideration.

**Soils:** The National Environmental Policy Act (NEPA) calls for an examination of the impacts on all components of affected ecosystems. The proposed action would disturb soils in the construction area if implemented.

**Vegetation and Wildlife:** NPS policy is to protect the natural abundance and diversity of all of the monument's naturally occurring communities. The action alternative would affect existing vegetation and wildlife.

**Special Status Species** (Threatened, Endangered, and Candidate species): Section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. NPS policy requires examination of the impacts to state listed threatened or endangered species and federal candidate species.

The NPS has initiated consultation with the U.S. Fish and Wildlife Service (USFWS) and will continue to consult once determinations are made of potential impacts to listed species. In a letter dated February 16, 2001, the USFWS identified 17 listed species that may be within the project area. Research conducted by monument staff has demonstrated that cactus ferruginous pygmy owls, Sonoran pronghorn, and lesser long-nosed bats are likely to range within the project area and may be affected by actions resulting from the action alternatives. Brown pelicans are known to occur occasionally within the monument but are not regular inhabitants. Quitobaquito pupfish are found within the monument, but also are not an issue in this project.

**Visitor Experience and Safety:** Providing for visitor enjoyment is one of the fundamental purposes of the NPS mission according to the Organic Act. The Organ Pipe Cactus National Monument GMP and the Statement for Management recognized that meaningful visitor experiences and recreational activities would be served by providing quality facilities. Alternatives in this document have the potential to variously affect visitor use and safety.

## IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

**State Species of Concern:** The Arizona Game and Fish Department (AGFD) lists several state species of concern (SOC) for Pima County (at [www.azgfd.com](http://www.azgfd.com)). The majority of these species are not known to occur in the project area. Of the thirteen avian SOC, only the crested caracara and the peregrine falcon might inhabit the project area. The caracara is a rare transient and the peregrine is a rare winter resident (Groschupf, et al, 1987) and so are unlikely to be affected. Seven bat species are state SOC and may be in the vicinity, but the proposed action would not affect roosting sites and therefore would have no or negligible adverse effects on foraging habitat.

**Air Quality:** The 1963 Clean Air Act (CAA), as amended (42 U.S.C. 7401 et seq.), requires federal land managers to protect park air quality. Should the preferred alternative be selected, local air quality would be temporarily affected by dust and vehicle emissions. Hauling material and operating construction equipment would result in increased vehicle emissions. Volatile organic compounds, nitrogen compounds, carbon monoxide and sulfur dioxide emissions would generally disperse fairly quickly (within a few minutes) from the construction area since air flow in the project area is good. These emissions would have a negligible effect on regional pollutant levels.

Fugitive road dust plumes from construction equipment and vehicle traffic would intermittently increase airborne particulate concentrations in the area near the project site. This dust would have a negligible effect on regional particulate levels. Dust suppressant materials, chemical stabilizing agents or other reasonably available control measures would be applied as necessary to mitigate dust impacts.

In summary, if the action alternative is selected, local air quality would be temporarily degraded by dust generated from road reconstruction activities and emissions from construction equipment and visitor



vehicles. This degradation would be highly localized and last only as long as construction activities occurred. Neither overall monument air quality nor regional air quality would be more than negligibly affected.

**Floodplains:** Executive Order 11988, *Floodplain Management*, requires all federal agencies to avoid construction within the 100-year floodplain unless no other practical alternative exists. Maps produced by the Federal Emergency Management Agency do not indicate any floodplains in the project area.

**Wetlands:** Executive Order 11990, *Protection of Wetlands*, requires federal agencies to avoid, where possible, impacts on wetlands. Proposed actions that have the potential to adversely impact wetlands must be addressed in a Statement of Findings. There are no wetlands on or nearby the project area.

**Water Quality:** The 2001 NPS *Management Policies* provide direction for the preservation, use, and quality of water originating, flowing through, or adjacent to park boundaries. The NPS seeks to restore, maintain, and enhance the quality of all surface and ground waters within the parks consistent with the 1972 Federal Water Pollution Control Act, as amended, and other applicable federal, state, and local laws and regulations.

The proposed project site is near a major wash. No construction would be conducted in the wash, and impacts to water quality are anticipated to be negligible with mitigation. Sediment traps, erosion checks, and/or filters would be placed in all waterways to filter the runoff before it leaves the project construction limits. No water would be removed from the wash for this project. Water needed for construction and dust control would come from other approved sources and would not be diverted from surface waters.

Fueling of all machinery would be conducted only in the equipment staging areas away from waterways. Any spills of hazardous materials, fuel, etc., would be cleaned up immediately, and would not be allowed to flow into drainages. Materials used for cleaning fuel spills and other hazardous materials would be available at the staging sites. To minimize the possibility of petrochemicals from construction equipment seeping into the soil, equipment would be checked frequently to identify and repair any leaks.

Throughout the project, all fill operations would comply with the permit requirements of Section 404 of the Federal Water Pollution Control Act (commonly known as the Clean Water Act), and all other applicable codes and requirements. All 404, 401, and other permits would be obtained by the design firm prior to construction.

The Storm Water Rule (40 CFR, Parts 122, 123, 124) requires an Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Notice of Intent be submitted to the EPA, with a copy sent to the Arizona Department of Environmental Quality-Water Quality Division, on construction activities, including clearing and grading, that occur on land in excess of five acres (less than five acres if construction occurs in 2003 or after) or if the proposed action is part of an overall common plan of development. Because the proposed action is not part of an overall common plan of development, a NPDES Notice of Intent is not required.

**Cultural Resources:** The 1966 National Historic Preservation Act (NHPA, 16 USC 470 et seq.), the 1916 NPS Organic Act, and NPS planning and cultural resource guidelines call for the consideration and protection of historic properties in development proposals. [The term historic properties refers to all cultural resources, including archeological resources, cultural landscapes, ethnographic resources, and historic structures/sites eligible for or listed on the National Register of Historic Places]. The evaluation of potential impacts of proposed actions on significant historic properties is required by NEPA and NHPA, as is attention to the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) for

sites where human remains or burials may be present.

*Archeological Resources* – An archeological survey of the project area was completed by the NPS Western Archeological and Conservation Center (WACC) on August 21, 2002. The survey encompassed approximately 2.5 acres, including the visitor center entrance and exit roads, and the area of proposed parking area modifications. Areas east of the visitor center and east of Highway 85 were also surveyed in efforts to relocate a previously recorded prehistoric archeological site (SON C:1:13) in the vicinity. The area by the visitor center has been heavily impacted by previous construction activities, diminishing the potential for intact archeological resources in this area.

Identified during the August, 2002 survey were an isolated projectile point, approximately 16 pieces of flaked stone, two plain brown ceramic sherds, and a basalt groundstone fragment. The artifacts were not found in close enough proximity to merit designation as a site under the State of Arizona site classification guidelines. Attempts to relocate the previously recorded site (SON C:1:13) in the vicinity of the visitor center were inconclusive. The site was initially recorded in 1979 as a light sherd and lithic scatter, and was described at that time as having been partially destroyed by construction of Highway 85. None of the artifacts identified during project investigations, nor what may be considered inconclusive evidence of site SON C:1:13, are recommended to meet the criteria of National Register eligibility (Corey, NPS, 8/22/02). WACC documented the survey results on a standard “no-effect” project clearance form and provided the Arizona SHPO an informational copy.

There are no recommendations for archeological monitoring during construction, and the NPS would adhere to the standard stipulations for the treatment of uncovered archeological resources (see *mitigating measures* on page 13 of this document). Because National Register-eligible archeological resources are unlikely to be affected by the current project, archeological resources are dismissed as an impact topic.

*Ethnographic Resources* - Ethnographic resources are defined by the National Park Service as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (Director’s Order 28: 181). The Tohono O’odham, Hia-Ced O’odham, and other regional tribal groups maintain cultural connections with the monument, and occasionally gather plants there for food, medicine, and ceremonial purposes. The 1937 proclamation establishing Organ Pipe Cactus NM retained tribal rights to harvest fruit from the organ pipe and other cacti.

Project undertakings are anticipated to negligibly disturb potential ethnographic resources such as cacti and other plants traditionally important to the culturally affiliated tribes. The diversity and abundance of these plants would remain elsewhere in the monument. Tribal rights to procure cacti and other plants within the monument would also not be affected.

The park will notify tribal representatives regarding resource issues and potential project impacts, and copies of the environmental assessment will be forwarded to each affiliated tribe or group for review and comment. Ethnographic resources are therefore dismissed as an impact topic in this environmental assessment.

*Historic Structures* - The Organ Pipe Cactus NM Visitor Center/headquarters building was designed in the modernistic NPS Mission ‘66 style by prominent NPS architect Cecil Doty of the Western Office of Design and Construction. The building was constructed in 1957 and dedicated in 1958 (Allaback, 2000). It is potentially eligible for the National Register of Historic Places in the context of NPS Mission 66 architectural design. However, proposed project activities would not affect the building nor diminish its

potential National Register eligibility. Therefore, discussion of historic structures was dismissed as an impact topic.

*Cultural Landscapes* - Cultural landscapes are broadly defined by the National Park Service as, "a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions (Director's Order 28: 87)." A cultural landscape inventory/assessment has not been completed for the visitor center area. Although the project would entail long-term modification of the existing entrance/exit roads, parking area, and circulation patterns, it would not appreciably affect topography, vegetation, spatial organization, or land use patterns associated with the landscape. In addition, any visual, audible, and atmospheric intrusions associated with construction would be temporary and negligible, lasting only as long as construction. Because the integrity of the existing landscape would be largely unaffected, cultural landscapes was dismissed as an impact topic.

**Environmental Justice:** Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. No alternative would have disproportionately high health or environmental effects on minorities or low-income populations or communities.

**Indian Trust Resources:** Secretarial Order 3175 requires that any anticipated impacts to Indian Trust Resources from a proposed action by Department of Interior agencies be explicitly addressed in environmental documents. The Federal Indian Trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaskan native tribes.

Indian Trust Resources do not exist at Organ Pipe Cactus National Monument; monument lands are not held in trust by the Secretary of the Interior for the benefit of American Indians. Therefore, this impact topic was dismissed from further consideration.

**Prime and Unique Farmland:** In August, 1980, the Council on Environmental Quality (CEQ) directed that federal agencies must assess the effects of their actions on farmland soils classified by the United States Department of Agriculture's Natural Resource Conservation Service as prime or unique. Prime or unique farmland is defined as soil which particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. According to the Natural Resource Conservation Service, there are no prime and unique farmlands associated with the project area.

**Wilderness, Wild and Scenic Rivers:** A majority of the monument was designated as wilderness in 1978. Because the proposed project would occur in developed portions of the monument, wilderness values or character would not be impacted. There are no designated wild and scenic rivers in the project area. Negligible adverse impacts on values contributing to the monument's designation as a biosphere reserve would be anticipated.

**Trans-boundary Impacts:** The southern boundary of the monument coincides with the international boundary with Mexico. The proposed project is of such limited scope that trans-boundary

impacts are expected to be negligible if present at all. There would be no impact on any aspect of the North American Free Trade Act (NAFTA) of 1993 and no breach of environmental protection regulations and guidelines, which were added as a result of supplemental agreements signed in 1993.

**Socioeconomic Values:** Socioeconomic values consist of local and regional businesses and residents, the local and regional economy, and monument concessions. The local economy and most business of the communities surrounding the monument are based on construction, tourist sales and services, and educational research. The regional economy is strongly influenced by tourist activity. The approved 1998 GMP discussed the socioeconomic environment and impacts extensively.

Should the preferred alternative be implemented, short-term economic benefits from construction related expenditures and employment would provide minimal economic gains for some local and regional businesses and individuals. There would be short-term benefits to local and regional businesses, but the regional economy would be negligibly affected in the long-term. The preferred alternative would have negligible adverse impacts on visitation which contributes tourism-based income to the regional economy.

**Soundscape Management:** In accordance with NPS *Management Policies* (2001) and Director's Order #47 (*Sound Preservation and Noise Management*), an important part of the NPS mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

Hauling materials, operating equipment, and other construction activities would be expected to contribute short-term noise impacts to the soundscape. Construction activity would occur primarily in the developed area of the visitor center, where noise levels accompanying visitor activities, and vehicle noise associated with parking and arrival/departures typically exceed other more remote areas of the park. Protection of a natural ambient soundscape and/or opportunity for visitors to experience natural sound environments, while important in other areas of the park, are not critical objectives in the visitor center vicinity. For this reason, and because construction-related noise would be expected to have short-term, negligible adverse impacts on park visitors and employees, soundscape management was dismissed as an impact topic.

**Lightscape Management:** In accordance with NPS *Management Policies* (2001), the National Park Service strives to preserve to the extent possible the quality of lighting associated with natural ambient landscapes and the night sky. Proposed project actions would negligibly contribute to artificial outdoor lighting requirements that could intrude on natural ambient light in the vicinity of the visitor center. Therefore, lightscape management was dismissed as an impact topic.

**Sustainability:** The National Park Service strives to incorporate the principles of sustainable design and development into all constructed facilities and park operations. Sustainability can be described as the result achieved by doing things in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long-term environmental impacts of development and other activities through resource conservation, recycling, waste minimization, and the use of energy efficient and ecologically responsible materials and techniques.

The National Park Service's *Guiding Principles of Sustainable Design* (1993) provides a basis for achieving sustainability in facility planning and design, emphasizes the importance of bio-diversity, and encourages

responsible decisions. The guidebook describes principles to be used in facility design and management that emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings. Organ Pipe NM reduces energy costs, eliminates waste, and conserves energy resources by using energy efficient and cost effective technology. The monument also encourages contractors to follow sustainable practices.

Because the principles of sustainable design and construction are incorporated throughout the project development process, the impact topic of sustainability is dismissed from further consideration in this environmental assessment.

# ALTERNATIVES CONSIDERED

## NO-ACTION ALTERNATIVE

The no action alternative describes the action of continuing present management operations and facility conditions; it does not imply or direct discontinuing present actions or removing existing uses, developments or facilities. The no-action alternative provides a basis for comparing the management direction and environmental consequences of the preferred alternative. Should the no-action alternative be selected, the NPS would respond to future needs and conditions associated with parking and circulation at the visitor center without major actions or changes in management direction.

Vehicle access to the visitor center would remain the same as it has since it was built over 40 years ago. Egress would continue to be via the separate one-way road to the south of the visitor center. The existing number of parking spaces and handicapped-accessible spaces would remain the same.

## PREFERRED ALTERNATIVE

The preferred alternative is to expand and re-configure the existing parking area (drawing attached) and would include the following elements:

- The current entrance road would be closed, and a single combined entrance and exit road would be constructed near the existing exit southeast of the visitor center.
- Some site clearing, excavation, filling and grading would be necessary, particularly in the expansion area to the south of the existing parking area.
- The existing traffic island would be removed and two new traffic islands would be constructed.
- Existing asphalt would be removed and possibly recycled. The new parking area would be surfaced with asphalt.
- Roadways would be built 26 to 28 feet wide (two 12' traffic lanes and 1-2' asphalt shoulders).
- The existing entrance road would be permanently removed and the area revegetated.
- Asphalt walkways and concrete sidewalks would be constructed.
- Header curbs, wheelstops, signs and pavement markings would be installed.

The new parking area would provide 42 head-in parking spaces and more than 10 pull-through spaces. Compared to the current situation, the preferred alternative would add up to 20 head-in parking spaces and 2 to 4 pull-through spaces. Parking for visitors with mobility impairments would be increased from 2 to 4 spaces.

Expansion of the parking area would clearly demarcate and separate the headquarters area entrance/exit ways from the Residence Area Access Road (Route 100).

The existing trail connecting the main campground with the visitor center would be reconstructed to cross the parking area at its south (and narrow) end to reduce pedestrian circulation conflicts. A pedestrian crossing would be clearly marked on the asphalt and connect the trail with the paved walkway to and from the visitor center.

The preferred alternative would also redefine and constrict the existing roadway to the employee/service parking area. Additional parking spaces would be added to the employee parking area.

Traffic direction signs and pavement markings would be included to reduce motorist confusion and conflicts.

During construction, traffic would be rerouted and temporary, alternate parking provided. All abandoned roads, construction access roads, and staging areas would be obliterated and disturbed areas restored following construction. Approximately 0.62 acres of existing roadway would be restored.

All actions described in the preferred alternative are consistent with the management direction of the Development Area Subzone as defined by the General Management Plan / Development Concept Plan / Final Environmental Impact Statement approved January 1998. The preferred alternative is also the proposed undertaking for NHPA §106 compliance.

## **MITIGATING MEASURES**

The following actions are intended to reduce or eliminate environmental impacts of the proposed action. They are a part of the preferred alternative, and would be included as requirements in any contract awarded:

- ◆ Construction zones would be identified and fenced with construction tape, snow fencing, or some similar, temporary material prior to any construction activity. The fencing would define the construction zone and confine activity to the minimum area required for construction. All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the construction zone as defined by the construction zone fencing.
- ◆ Temporary impacts associated with parking area and roadway construction would occur, such as soil and vegetation disturbance and the possibility of soil erosion. In an effort to avoid introduction of exotic plant species, no hay bales would be used. Hay often contains seed of undesirable or harmful alien plant species. Therefore, only wood excelsior bales may be used for any erosion control dams, if any are necessary. Standard erosion control measures such as silt fences and/or sand bags would also be used to minimize any potential soil erosion.
- ◆ Silt fencing fabric would be inspected weekly or after every major storm. Accumulated sediments would be removed when the fabric is estimated to be approximately 75% full. Silt removal would be accomplished in such a way as to avoid introduction into any wetlands or flowing water bodies.
- ◆ Excavated soil would be used in the construction project. The top 6-8 inches of soil would be salvaged and stored during construction. Salvaged soil would be stored in NPS approved areas. This soil would be spread on the surface of areas disturbed during the construction process. The salvaged soil would contain seeds of native plants as well as micro-organisms essential for healthy soil processes, and would also reduce construction scars. Additional seed, collected from plants in the vicinity, would be raked into the salvaged and replaced soil.
- ◆ In many areas soils and vegetation are already impacted to a degree by various human and natural activities. Construction would take advantage of these previously disturbed areas wherever possible. Soils within the project construction limits would be compacted and trampled by construction equipment and workers. After construction is complete, compacted areas would be ripped to de-compact the soil.

- ◆ Some petrochemicals from construction equipment could seep into the soil. To minimize this possibility, equipment would be checked frequently to identify and repair any leaks.
- ◆ Should construction unearth previously undiscovered archeological resources, work would be stopped in the area of the discovery and the park would consult with the state historic preservation officer and the Advisory Council on Historic Preservation, as necessary, according to 36 CFR 800.13, *Post Review Discoveries*. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.
- ◆ The NPS would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and subcontractors would also be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment traffic would be minimized in the area of the discovery. Equipment and materials staging areas would also avoid known archeological resources.
- ◆ The flow of vehicle traffic on the access road and in the parking area would be maintained as much as possible during the construction period. Visitors would be informed of construction activities and potential associated delays.
- ◆ Contractors would coordinate with park staff to reduce disruption to normal park activities. Equipment would not be stored along the roadway overnight without prior approval of park staff. Construction workers and supervisors would be informed about the special sensitivity of park values, regulations, and appropriate housekeeping.

## ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act, which is guided by the Council on Environmental Quality (CEQ). The CEQ indicates that the environmentally preferable alternative is that alternative that will promote the national environmental policy as expressed in NEPA's Section 101. This includes alternatives that:

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings
- (3) attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- (4) preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice
- (5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The No Action Alternative would not contribute to adverse impacts to cultural and natural resources in



the project area, thereby meeting goals 1 and 4. However, because it would not improve existing conditions that adversely affect visitor experience and safety, it would not meet goals 2, 3, or 5.

The NPS preferred alternative would occur almost entirely on previously-disturbed land, minimizing potential adverse impacts to natural and cultural resources. Implementation of this alternative would cause negligible adverse impacts on small areas adjacent to the existing parking area due to short-term construction activities. A segment of roadway would be removed and about 0.62 acres would be restored to more natural conditions, a long-term benefit to the monument's natural resources. This alternative would meet goals 2, 3, 4 and 5.

With the information and analysis presented in this document, the NPS has determined that the environmentally preferable alternative is the Preferred Alternative because it surpasses the other alternative in realizing the *fullest range* of national environmental policy goals as stated in §101 of NEPA. The Preferred Alternative would a) assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings, b) attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences, c) preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice, and d) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.

## SUMMARIES

### COMPARISON OF ALTERNATIVES

ALTERNATIVE A – NO ACTION	ALTERNATIVE B – PREFERRED ALTERNATIVE
<p>Vehicle access and egress routes to the Organ Pipe Cactus NM visitor center would remain unchanged. The existing number of parking spaces and handicapped-accessible spaces at the visitor center would also remain the same.</p> <p>The No Action alternative would not adequately address the project purpose and need of reducing traffic congestion, providing safe vehicle/pedestrian access and circulation, and improving the sense of arrival and orientation for monument visitors. The existing configuration of the entrance/exit roadways and parking area would continue to be problematic for large vehicles and would impede safe pedestrian access. If the No Action Alternative were chosen, vehicle and pedestrian conflicts would be expected to continue to increase in proportion to visitation increases, and the goals and objectives for the visitor center area would not be met.</p>	<p>The proposed action would include the following elements:</p> <ul style="list-style-type: none"> <li>• The current entrance road would be closed and the 0.62 acre area revegetated. A single combined entrance and exit road (26 to 28 feet wide) would be constructed near the existing exit southeast of the visitor center.</li> <li>• Some site clearing, excavation, filling and grading would be necessary, particularly in the area where the existing parking area would be expanded.</li> <li>• The existing parking area would be repaved and reconfigured with two new traffic islands to accommodate an additional 20 head-in parking spaces and 2 to 4 pull-through spaces. Parking for visitors with mobility impairments would be increased from 2 to 4 spaces.</li> <li>• Asphalt walkways, concrete sidewalks, and curbs would be constructed.</li> <li>• Expansion of the parking area would clearly demarcate and separate the headquarters area entrance/exit ways from the Residence Area Access Road (Route 100).</li> <li>• The existing trail connecting the main campground with the visitor center would be reconstructed to reduce pedestrian circulation conflicts.</li> <li>• The existing roadway to the employee/service parking area would be redefined. Additional parking spaces would be added to the employee parking area.</li> <li>• During construction, traffic would be rerouted and temporary, alternate parking provided. All abandoned roads, construction access roads, and staging areas would be obliterated and disturbed areas restored following construction.</li> </ul> <p>The proposed alternative meets the project purpose and need of reducing traffic congestion, providing safe vehicle/pedestrian access and circulation, and improving the sense of arrival and orientation for monument visitors.</p>

### COMPARISON OF ENVIRONMENTAL IMPACTS

IMPACT TOPIC	ALTERNATIVE A - NO ACTION	ALTERNATIVE B - PREFERRED ALTERNATIVE
Soils	Soils would not be impacted.	Long-term minor adverse impact to soils within the area of disturbance would occur.
Vegetation	Vegetation communities would not be impacted.	Long-term minor adverse impact to the local Sonoran Desert biotic community would occur.

Wildlife (other than special status species)	Wildlife would not be impacted.	Short-term minor adverse impacts to wildlife would occur during construction.
Special Status Species	Special status species would not be impacted.	Short-term minor adverse impacts to Sonoran pronghorn antelope, and short-term moderate adverse impacts to cactus ferruginous pygmy-owls would occur. The NPS determines that the alternative <i>may affect, but would not likely adversely affect</i> these species. The preferred alternative would have no effect on lesser long-nosed bats.
Visitor Use and Experience	The No Action alternative would continue long-term minor adverse impacts to opportunities for visitors to have a pleasant and safe experience.	There would be short-term moderate adverse impact on visitor use and experience during construction. However, in the long-term, this alternative would have a moderate beneficial effect on visitor use and experience.

# DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

## DESCRIPTION OF IMPACTS - METHODOLOGY

Anticipated impacts are described in terms of duration and intensity based on current literature and knowledge of NPS specialists.

### Duration of impacts is defined as follows:

- *Short-term* – impacts that would be 3 years or less in duration. Three years was selected as the difference between short and long-term due to the length of construction (up to 1 year) plus the length of revegetation and post-treatments (2 years).
- *Long-term* – impacts that would last longer than 3 years.

### Impact Intensity for Natural Resources and Visitor Use/Experience

(intensity levels are provided for each resource topic)

### Cumulative Impacts

The CEQ regulations implementing NEPA require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

The following development actions were considered in assessing potential cumulative impacts on the resource topics evaluated in this environmental assessment:

1. Construction of first residences, headquarters, campground. Carried out in the 1940s and early 1950s.
2. "Mission '66" construction. Mission '66 was a NPS servicewide effort to improve facilities and the infrastructure of the National Park system. During this period of construction (1956-66) most of the existing infrastructure at ORPI was built. The visitor center and access road were constructed in 1957. Later (1960s) the residences, maintenance yard, residence road, campground road, and campground were built and utilities upgraded.
3. Construction of Residence Area playground. Date unknown, possibly 1960s; approximately 0.7 ac (0.3 ha) in size.
4. Closure of original Residence, HQ, Campground area. Carried out incrementally in the 1960s and 1970s.
5. Construction of radio shed and access road. Date unknown.
6. "Tiger Cage" creation and continued use [used for maintenance materials storage]. Original date unknown, use continues to present. Located in large wash approximately 0.3 mi (0.5 km) northwest of visitor center.
7. Removal of livestock. Accomplished monument-wide in the late 1970s. General beneficial effects on native vegetation density and diversity.
8. Removal of former Volunteer-In-Parks campground (1980s).
9. Construction of new Volunteer-In-Parks campground. Carried out in 1980s; located within current Residence Loop drive. Approximately 1.7 ac (0.7 ha) converted from natural vegetation to recreational vehicle parking

sites.

10. Removal of residence trailers and construction of duplex units. One duplex constructed in the main residence area and one at the campground in early 1990s.
11. Maintenance shop sewer system replacement (1995).
12. Maintenance shop extension (1995).
13. Replacement of old fire hydrants (1995).
14. Replacement of residence roofs and addition of new ramadas. Carried out in 1994-1995 on all residences along main Residence Loop drive. Little substantial new ground or vegetation disturbance. Construction noise.
15. Duplexes completed and landscaped (1996).
16. Removal of plants on leach field. In early 1997, a thicket of plants [large stature creosote bush, acacia (*Acacia constricta*), brittlebush (*Encelia farinosa*), some paloverde and wolfberry (*Lycium* spp.)] was removed from the leach field servicing the residence area. The area cleared was approximately [0.14 ac (0.06 ha)]. This project took place immediately prior to the pygmy-owl's listing as endangered. Taken in combination with other projects, this may have adversely affected pygmy-owl habitat. Contemporaneous with this action, a resident pygmy-owl moved from the immediate area to the east side of Highway 85.
17. Fiber optic cable installation. This project (completed in 1999) involved burying a fiber-optic cable in a trench connecting the Headquarters/Visitor Center, the maintenance compound, and the residence area. The original project description did not specify the expected width of the impact area, but stated that it would be adequate to bury the 4 in (10.2 cm) diameter conduit housing the cables. Most of the length of this project was along roadside or previously-disturbed areas, except portions within the residence loop road. This led to a determination by the NPS that the project was not likely to adversely affect the cactus ferruginous pygmy-owl. However, the actual trenching resulted in an impacted area averaging 13.7 ft (4.2 m) wide through the interior of the Residence Loop road. This project took place within known pygmy-owl habitat. In its final form, and in combination with other contemporary projects, this may have adversely affected pygmy-owl habitat.
18. Installation of new water/chlorination lines (1999-2000). The original project description projected an impacted area 8 ft (2.4 m) in width, generally through previously-disturbed or sparsely vegetated areas. This led to a determination by the NPS that the project was not likely to adversely affect the cactus ferruginous pygmy-owl. However, the actual project impact averaged 11.6 ft (3.5 m) in width, and diverted from the original projected route in some areas. This resulted in greater loss of Desert scrub vegetation than anticipated, including xeroriparian habitat. This project took place within known pygmy-owl habitat. In its final form, and in combination with other projects, this may have adversely affected pygmy-owl habitat.
19. Reconstruction of the first five miles of the North Puerto Blanco Drive. The road would be widened to two lanes, with four interpretive pullouts and a parking area with picnic table at the Valley of the Ajo overlook. The remaining 25 miles of the road would be closed to traffic during pronghorn fawning season (March 15 through summer). This project would create minor impacts and long-term benefits to pronghorns.

### **Impairment of Park Resources or Values**

In addition to determining the environmental consequences of the preferred and other alternatives, NPS *Management Policies* and Director's Order-12, *Conservation Planning, Environmental Impact Analysis and Decision-Making*, require analysis of potential effects to determine if actions would impair park resources.

The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, begins with a mandate to conserve park resources and values. NPS managers

must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give managers the discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resource or values. The prohibited impairment is an impact that, in the professional judgment of the responsible manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park unit;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park's General Management Plan or other relevant NPS planning documents.

Impairment may result from NPS management activities, visitor activities, or activities undertaken by concessionaires, contractors and others operating in the park. A determination of impairment is made for each natural resource impact topic analyzed in this document.

## ENVIRONMENTAL COMPONENTS

### General

Organ Pipe Cactus National Monument is located near the geographic center of the Sonoran Desert. A combination of several environmental characteristics make this desert unique from all other deserts in North America. Annual rainfall varies across the biome, but on OPCNM average total rainfall ranges from 6 to 12 inches. About half of the annual rainfall is deposited from July through September and the other half from November through April. Summer temperatures often exceed 105° F (40.6° C). Winter temperatures are mild; catastrophic freezes are infrequent. The climate, evolutionary history, and topography of the region make the Sonoran Desert the most biologically diverse desert in North America.

### Soils

Soils in the project area are classified in the Gunsight Series (USDA- SCS 1972). These soils are deep, very gravelly loams that are well-drained and have very low available water capacity. Runoff is medium and permeability is moderate (USDA- NRCS 1997). In the local area of the project, Gunsight Series soils are intermingled with Harqua Series soils, and are mapped together as the Gunsight-Harqua Complex (USDA- SCS 1972):

#### Gunsight Series

- N GuA-Gunsight very gravelly loam, 0-2% slopes.
- N GuC-Gunsight very gravelly loam, 2-15% slopes.

#### Harqua Series

- N HaA-Harqua very gravelly loam, 0-3% slopes.
- N HbB-Harqua very cobbly loam, 0-8% slopes.
- N Hc-Harqua-Gunsight complex

### Impact Intensity

For this analysis, the intensity or severity of the impact to soils is defined as follows:

*Negligible* – soils would not be affected or the impacts to soils would be below or at the lower levels of detection. Any effects to soil productivity or fertility would be slight and no long-term impacts to soils would occur.

*Minor* – the impacts to soils would be detectable. Effects to soil productivity or fertility would be small, as would the area affected. If mitigation was needed to offset adverse impacts, it would be relatively simple to implement and would likely be successful.

*Moderate* – the impact on soil productivity or fertility would be readily apparent, likely long-term, and result in a change to the soil character over a relatively wide area. Mitigation measures would probably be necessary to offset adverse impacts and would likely be successful.

*Major* – the impact on soil productivity or fertility would be readily apparent, long-term, and substantially change the character of the soils over a large area in and out of the monument. Mitigation measures to offset adverse impacts would be needed, extensive, and their success could not be guaranteed.

### ***Impacts of No Action***

Under the No Action alternative, there would be no project-related ground disturbance with the potential to impact soils. There would be no changes in current conditions of soils, including runoff or permeability as a result of implementing this alternative.

### ***Cumulative Impacts***

Impacts to soils in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona, and private landowners. Past, present and foreseeable future impacts have and could include road construction or improvement; mineral extraction; construction of homes, businesses and associated utility lines; fences; and other development (see page 18 for a list of specific project actions having cumulative impact on soils in the area). Large-scale soil degradation has occurred in the past on much of the rangelands of southern Arizona. The primary form of degradation has been through soil erosion, and this has dramatically changed the upper soil horizon(s). Many areas now have concentrations of coarse fragments on the soil surface, left to accumulate as the smaller sand, silt and clay soil particles have eroded away. These changes in soil composition affect the soil moisture, temperature and other characteristics of soil, which in turn affect vegetation (Post 1990). The No Action alternative would not contribute any project-related ground disturbance or involve other actions that could contribute to adverse cumulative impacts to soils in the region.

### ***Conclusion***

The No Action alternative would not impact soils, and would also contribute no or negligible adverse cumulative impacts to soils in the area.

There would be no major adverse impact to soils whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of soil resources or values as a result of this alternative.

### ***Impacts of the Preferred Alternative***

Soils would be impacted by site clearing, excavation, filling and grading. Most of the proposed action overlies the existing parking area and roadways. Only about 1.67 acres of new disturbance would occur, primarily on the south end of the project area. Impacts to soils would be adverse and long-term, but minor because of the highly localized nature of the disturbance.

### ***Cumulative Impacts***

Impacts to soils in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona, and private landowners. Past, present and foreseeable future impacts have and could include road construction or improvement; mineral extraction; construction of homes, businesses and associated utility lines; fences; and other development (see page 18 for a list of specific project actions having cumulative impact on soils in the area). Large-scale soil degradation has occurred in the past on much of the rangelands of southern Arizona. The primary form of degradation has been through soil erosion, and this has dramatically changed the upper soil horizon(s). Many areas now have concentrations of coarse fragments on the soil surface, left to accumulate as the smaller sand, silt and clay soil particles have eroded away. These changes in soil composition affect the soil moisture, temperature and other characteristics of soil, which in turn affect vegetation (Post 1990). The minor adverse impacts of the proposed action would contribute a small component of any overall cumulative adverse impact to soils in the region.

### ***Conclusion***

Soils would receive minor, long-term adverse impacts from implementation of the Preferred Alternative. Minor long-term adverse cumulative impacts to soils would also be expected.

There would be no major adverse impact to soils whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of soil resources or values as a result of this alternative.

## **Vegetation**

The proposed project area is located on the upper bajada of Twin Peaks, a southeasterly extension of the Puerto Blanco Mountains. The plant community found around the Visitor Center is Mixed Sonoran Desertscrub. Although the project area is sparsely vegetated, this community is dominated by varying combinations of bursage, brittlebush, ocotillo, palo verde, saltbush, saguaro, organ pipe cactus, and other cacti.

### **Impact Intensity**

For this analysis, all available information on known vegetation was compiled. Where possible, map locations of sensitive vegetation was compared with locations of proposed development and modifications of existing facilities. Predictions about short- and long-term site impacts were based on previous vegetation studies and monitoring data from the monument. The thresholds of change for the intensity of an impact are defined as follows:

*Negligible* – an action that could result in a change to a population of individuals of a species, but the change would be so small that it would not be of any measurable or perceptible consequence.

*Minor* - an action that could result in a change to a population of individuals of a species. The change would be small and localized and of little consequence.

*Moderate* – an action that would result in some change to a population or individuals of a species. The change would be measurable and of consequence to the species, but more localized.

*Major* – an action that would have a noticeable change to a population or individuals of a species. The change would be measurable and result in a severely adverse or major beneficial impact having possible permanent consequences upon the species.



### ***Impacts of No Action***

Under the No Action alternative, there would be no project-related ground disturbance with the potential to impact vegetation. There would be no changes in the current status of vegetative species composition other than those brought about by natural environmental processes.

### ***Cumulative Impacts***

Impacts to biotic communities in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona and private landowners. Past, present and foreseeable future impacts have and could include road construction or improvement; livestock grazing; mineral extraction; construction of homes, businesses and associated utility lines; fences; and development associated with public use of park units and wildlife refuges (see page 18 for a list of specific project actions having cumulative impact on vegetation in the area). Actions such as these can disrupt and destroy native vegetation or introduce exotic species that could out-compete native plants for limited resources. The no-action alternative would not contribute any project-related ground disturbance or involve other actions that could contribute to adverse cumulative impacts to vegetation in the region.

### ***Conclusion***

The No Action alternative would not impact vegetative communities, and would also contribute no or negligible adverse cumulative impacts to vegetation in the area.

There would be no major adverse impact to vegetation whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of vegetation resources or values as a result of this alternative.

### ***Impacts of the Preferred Alternative***

Vegetation in the project area would be disturbed or destroyed by site clearing, excavation, filling and grading. Most of the proposed action overlies the existing parking area and roadways. Only about 1.67 acres of new disturbance would occur, primarily on the south end of the project area. Impacts to vegetation would be adverse and long-term, but minor because of the highly localized nature of the disturbance.

### ***Cumulative Impacts***

Impacts to biotic communities in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona and private landowners. Past, present and foreseeable future impacts have and could include road construction or improvement; livestock grazing; mineral extraction; construction of homes, businesses and associated utility lines; fences; and development associated with public use of park units and wildlife refuges (see page 18 for a list of specific project actions having cumulative impact on vegetation in the area). Actions such as these can disrupt and destroy native vegetation or introduce exotic species that could out-compete native plants for limited resources. The minor adverse impacts of the preferred alternative, in conjunction with the adverse impacts of other reasonably foreseeable future actions, would result in minor adverse cumulative impacts to vegetation in the region.

### ***Conclusion***

Vegetation would receive minor, long-term adverse impacts from implementation of the Preferred Alternative. Minor adverse cumulative impacts to vegetation in the region would also be expected.

There would be no major adverse impact to vegetation whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of vegetation resources or values as a result of this alternative.

## **Wildlife**

In common with the flora of Organ Pipe Cactus NM, the fauna is highly diverse. Approximately 55 species of mammals, four species of amphibians, 43 species of reptiles and one species of fish occur within the monument. A bird checklist produced by the USGS indicates that 277 species of birds may use the monument at one time of the year or another (Groschupf, et al, 1987). Of these species, 63 are known to breed, with an additional 5 suspected of breeding in the monument. Wildlife that may inhabit areas near the visitor center include various lizards, kangaroo rats, bats, various snakes, jackrabbits, coyotes, and javelinas. Most of this wildlife is active only at night (nocturnal) or cooler evening hours (crepuscular). During the hottest part of the day, they may hide in cactus holes, underground burrows, rock crevices, or other cool and shaded spots.

Concentrated visitor use in the project area has caused some habitat degradation. The installation of underground utilities and construction of the visitor center, sidewalks, parking lot and related facilities, has also caused surface and subsurface disturbance. The variety and number of wildlife in the vicinity of the visitor center is limited due to human activity and development. Most of the wildlife in the vicinity are also transients.

## **Impact Intensity**

For this analysis, all available information on known wildlife was compiled. Predictions about short- and long-term site impacts were based on previous wildlife studies and monitoring data collected by the monument. The thresholds of change for the intensity of an impact are defined as follows:

*Negligible* – an action that could result in a change to a population of individuals of a species, but the change would be so small that it would not be of any measurable or perceptible consequence.

*Minor* - an action that could result in a change to a population of individuals of a species. The change would be small and localized and of little consequence.

*Moderate* - an action that would result in some change to a population or individuals of a species. The change would be measurable and of consequence to the species, but more localized.

*Major* – an action that would have a noticeable change to a population or individuals of a species. The change would be measurable and result in a severely adverse or major beneficial impact having possible permanent consequences upon the species.

## ***Impacts of No Action***

Under the No Action alternative, there would be no project-related aural, visual or ground disturbance with the potential to impact wildlife. There would be no changes in the current status of wildlife communities either in terms of species composition or population dynamics other than those brought about by natural environmental processes.

## ***Cumulative Impacts***

Impacts to biotic communities in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona and private landowners. Past, present and foreseeable future impacts have and could include road construction or improvement; livestock grazing; mineral extraction;

construction of homes, businesses and associated utility lines; fences; and development associated with public use of park units and wildlife refuges. Concentrated visitor use in the project area has caused some habitat degradation. The installation of underground utilities and construction of the visitor center, sidewalks, parking lot and related facilities, have also caused surface and subsurface disturbance (see page 18 for a list of specific project actions having cumulative impact on wildlife in the area).

Actions such as these can disrupt or fragment habitat, displace individuals or otherwise cause stress to animals. Incremental development of the region has affected the abundance and diversity of wildlife by changing the capacity of habitats to provide necessary food, shelter and reproduction sites. Wildlife is slowly becoming more restricted by current land uses, increasing development, and human activity, causing some individuals and populations to either adapt or move. The No Action alternative would not contribute any project-related actions that could contribute to adverse cumulative impacts to wildlife in the region.

### ***Conclusion***

The No Action alternative would not impact wildlife, and would also contribute no or negligible adverse cumulative impacts to wildlife in the area.

There would be no major adverse impact to wildlife whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of wildlife resources or values as a result of this alternative.

### ***Impacts of the Preferred Alternative***

Animals inhabiting the project area, including small invertebrates, mammals and reptiles that live under rocks or in ground burrows, would be displaced by construction activity. Although wildlife in the project area may be somewhat used to humans and traffic in the area, the increased noise and disturbance of construction would likely affect animals as evidenced by temporary behavior modification (i.e. typical fear and avoidance reactions). Construction is expected to last 4 months. Some smaller animals may return to the project area while others may move to the 0.62 acres of restored land following construction.

Construction in this alternative would occur predominantly on previously disturbed land that provides minimal wildlife habitat when compared to undisturbed land. This minimizes both the short-term disturbance of wildlife and further impacts on habitat connections throughout the monument. A minimum of new habitat disturbance would occur (1.67 acres), although restoration of 0.62 acres would result in a net disturbance of 1.05 acres. As a result, impacts to wildlife would be adverse but minor.

### ***Cumulative Impacts***

Impacts to biotic communities in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona and private landowners. Past, present and foreseeable future impacts have and could include road construction or improvement; livestock grazing; mineral extraction; construction of homes, businesses and associated utility lines; fences; and development associated with public use of park units and wildlife refuges. Concentrated visitor use in the project area has caused some habitat degradation. The installation of underground utilities and construction of the visitor center, sidewalks, parking lot and related facilities, has also caused surface and subsurface disturbance (see page 18 for a list of specific project actions having cumulative impact on wildlife in the area).

Actions such as these can disrupt or fragment habitat, displace individuals or otherwise cause stress to

animals. Incremental development of the region has affected the abundance and diversity of wildlife by changing the capacity of habitats to provide necessary food, shelter and reproduction sites. Wildlife is slowly becoming more restricted by current land uses, increasing development, and human activity, causing some individuals and populations to either adapt or move. This alternative involves reconstruction of roads and parking areas that would cause adverse impacts. These impacts, in conjunction with the adverse impacts of other reasonably foreseeable future actions, would result in minor adverse cumulative impacts to wildlife in the region.

### ***Conclusion***

Implementing the Preferred Alternative would result in short-term minor adverse impacts to wildlife in the immediate area. Minor adverse cumulative impacts to wildlife in the region would also be expected.

There would be no major adverse impact to a wildlife whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of wildlife resources or values as a result of this alternative.

## **Special Status Species (Federally Listed Threatened, Endangered or Candidate Species)**

### ***Lesser long-nosed bat (*Leptonycteris curasoae*)***

This endangered bat is present in the monument from mid-April through September. One large maternity colony of approximately 16,000 to 21,000 bats is known, approximately 10 miles from the project area. Additional day roosts are suspected in rock crevices in the Puerto Blanco, Bates, and Ajo Mountains at various locations 2 to 20 miles from the project area. Numerous temporary night roosts are known in rock crevices and abandoned outbuildings throughout the monument. This species forages throughout the project area, and throughout the monument where large columnar cacti and/or agaves are present. Temporary night roosting takes place near the project area, evidenced by characteristic guano splatters under the eaves of buildings in the visitor center and residential areas.

### ***Sonoran pronghorn (*Antilocapra americana sonorensis*)***

The endangered Sonoran pronghorn is present in the monument year-round, but probably in greater numbers during the late winter and spring dry season. Historic records and one recent record of a radiotelemetered individual have documented pronghorn within one to two miles of the project area. However, this area of foothills and relatively dense Sonoran Desertscrub presents habitat not often used by Sonoran pronghorn. Most contemporary records (radiotelemetry locations and visual records) are from dryer valley and foothill habitats to the west and north of the project area (e.g. Valley of the Ajo, Growler Valley, Bates Mountains, Puerto Blanco Mountains).

### ***Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*)***

Endangered cactus ferruginous pygmy-owls nest in a cavity in a tree or large columnar cactus. Cavities may be naturally formed (e.g., knotholes) or excavated by woodpeckers. Pygmy-owls generally nest from April to June (AGFD and USFWS 2000). Eggs are incubated for approximately 28 days. Fledging follows in another 21 to 30 days. This owl's diverse diet includes birds, lizards, insects and small mammals.

Decline in the U.S. is probably primarily the result of destruction and modification of riparian and

thornscrub habitats via urban and agricultural encroachment, wood cutting, water diversion, channelization, livestock overgrazing, groundwater pumping, and hydrological changes resulting from various land-use practices (USFWS 1994).

This owl is a rare permanent resident in the monument. Through limited surveys, monument staff have located and monitored 3 to 5 territories annually since 1995 (Tibbitts in prep.). A recent analysis (Tibbitts and Dickson 1998) found that 53% of owl locations were in middle- and upper-bajada Arizona Uplands desertscrub, while 37% were associated with xeroriparian habitats. The remaining 10% were associated with foothills or lower bajada areas. The proposed project area contains all three of these habitat categories.

The project area has been documented as occupied by pygmy-owls (Tibbitts). Records span from 1949 to 1997, from the residence area, visitor center/headquarters (both former and current locations), the unnamed wash flowing adjacent to the project area, the unnamed wash approximately ½ mile east of the project area, the campground, and the foot trails connecting the campground and headquarters areas. Nesting was confirmed in 1949, 1969, 1976, and suspected in 1996. It should be noted that all records prior to 1995 are incidental, casual observations. All records from 1995 through 2000 (including negative data) are based on annual surveys and monitoring. All records suggest this area is occupied by pygmy-owls, but not in every year. No more than one occupied territory has been documented in this area in any one year. However, the total area occupied over the years is large enough for perhaps two territories, based on adjacent territory spacing observed in the monument along Kuakatch Wash.

### **Impact Intensity**

Information on special status species (threatened, endangered, candidate species and species of special concern) was gathered from the U.S. Fish and Wildlife Service and available research data compiled at the monument. Map locations of habitat associated with special status species were compared with locations of proposed development and modifications of existing facilities. Known impacts caused by similar projects were also considered. The thresholds of change for the intensity of an impact are defined as follows:

*Negligible* – an action that could result in a change to a population or individuals of a species or designated critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence. The change would result in a *no effect* opinion from the U.S. Fish and Wildlife Service.

*Minor* – an action that could result in a change to a population or individuals of a species or designated critical habitat. The change would be measurable but small, localized and of little consequence, and would result in a *may affect, but not likely to adversely affect* opinion from the U.S. Fish and Wildlife Service.

*Moderate* – an action that would result in some change to a population or individuals of a species or designated critical habitat. The change would be measurable and of consequence, and would likely result in a *may affect, but not likely to adversely affect* opinion from the U.S. Fish and Wildlife Service.

*Major* – an action that would result in a noticeable change to a population or individuals of a species or designated critical habitat. The change would result in a *likely to adversely affect* opinion from the U.S. Fish and Wildlife Service.

### **Impacts of No Action**

Under the No Action alternative, there would be no project-related aural, visual or ground disturbance with the potential to impact special status species or their habitat.

### **Cumulative Impacts**

Impacts to listed species habitat in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona and private landowners. These impacts have and could include road construction or improvement; livestock grazing; mineral extraction; construction of homes, businesses and associated utility lines; fences; and development associated with public use of NPS units and wildlife refuges.

The proposed project would occur in an area of localized development. NPS headquarters have been located in this area since the monument was established in 1937. Development, maintenance, and relocation of various facilities (campground, residences, visitor center, and maintenance area) have taken place sporadically over the years. These activities would have impacted wildlife habitat to varying degrees. A number of construction and maintenance projects have taken place over the past several decades in the monument, and additional maintenance and upgrading projects are planned. With the exception of one activity (livestock removal), these have negatively impacted Sonoran Desert scrub and xeroriparian habitats to varying degrees (see page 18 for a list of specific project actions having cumulative impact on special status species in the area).

Actions such as those listed above can disrupt or fragment habitat, displace individuals or otherwise cause stress to animals. To more sensitive species such as the Sonoran pronghorn, these impacts are considered moderately adverse in intensity. To other species, the impact may vary from negligible to moderate. These projects would contribute to cumulative adverse impacts on all special status species.

Pronghorn habitat is adversely impacted by various development actions. Invasion of pronghorn habitat by non-native plants is also likely to be a significant impact. Taken with the impacts of the general increase in human activity, impacts on the skittish Sonoran pronghorn specifically would be cumulatively increased. For additional analysis of cumulative impacts on pronghorn, see the *Draft Supplemental Environmental Impact Statement, Re-Analysis of Cumulative Impacts on the Sonoran Pronghorn* (NPS 2000c) available from the monument. Closing North Puerto Blanco Drive (and other west side roads) at least seasonally would reduce existing adverse cumulative impacts.

Additional impacts on these species are being caused by over 180,000 undocumented illegal aliens and several thousand drug smugglers passing through the area each year. Professional judgment would indicate that the impacts of significantly fewer (primarily law-abiding) visitors to the monument do not substantially add to the cumulative adverse impacts.

The No Action alternative would not contribute any project-related actions that could contribute to adverse cumulative impacts to special status species in the region.

### ***Conclusion***

The No Action alternative would have no effect on special status species, and would also contribute no or negligible adverse cumulative impacts to special status species in the area. No change from the current status of these species would result from implementation of this alternative.

There would be no major adverse impact to special status species whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of special status species or values as a result of this alternative.

### ***Impacts of the Preferred Alternative***

As required by Section 7 of the Endangered Species Act, the NPS initiated consultation with the U.S. Fish and Wildlife Service in the spring of 2001 in conjunction with project actions planned for the North Puerto Blanco Drive.

### **Lesser Long-Nosed Bat**

Implementation of this alternative would not affect roost sites typically used by these bats (caves, abandoned mines and rock crevices). The large maternity site is over 5 miles away. This bat feeds at night on blooming flowers of succulent plant species such as saguaro, organ pipe and agave. No specimens of these species would be lost. No construction activities would occur at night when bats are foraging. Construction would not directly affect the bats or cause a measurable loss of Sonoran desert habitat component. This alternative would create a decrease in the total area of development (roads, parking, buildings, etc.) in the monument by 0.62 acres. Therefore, this alternative would have no effect on lesser long-nosed bats.

### **Sonoran Pronghorn**

Sonoran pronghorn are very wary of humans, and flee at the approach of motor vehicles, low-flying aircraft, and people on foot. The noise and movement associated with construction would cause fear and avoidance reactions during that time. This adverse impact would be short-term and minor because it is unlikely that pronghorn are using the site now.

The proposed project would involve loud intrusive activities, including heavy machinery, jackhammers, earth movers. To mitigate this, construction would be conducted outside the fawning season (March 15 to July 15 according to the USFWS). Cumulative impacts on the skittish Sonoran pronghorn specifically would be increased. The distance from the proposed project area to their more common grounds, the Puerto Blanco Mountains, is a mitigating factor.

When wildlife perceive a disturbance as frequent enough to become "expected" and non-threatening, they show little overt response (Knight and Cole, 1995). Whether or not this applies to this subspecies of pronghorn has not been documented. However, they have been observed by monument staff standing or browsing next to Highway 85. The project area (visitor center, headquarters and parking area) has seen concentrated human use since the late 1950s, so it is possible that pronghorn and other wildlife have grown accustomed to the presence of the facilities and associated use. Once construction is completed, the environmental conditions surrounding the visitor center would return to those approximating current conditions with the additional 0.62 acres currently covered by the northern roadway returned to a more natural state. Given the analysis presented above and the mitigation included in the description of the preferred alternative, it may affect but is not likely to adversely affect Sonoran pronghorn antelope.

### **Cactus Ferruginous Pygmy-Owl**

Calling surveys for cactus ferruginous pygmy-owls (CFPO) were conducted by monument staff and no territorial owls were detected in 2000 and 2001. The project area lies within a territory occupied as early as 1949 and as recently as 1997. Another survey would be conducted closer to the beginning of construction.

Noise disturbance during construction is a potential adverse impact. The proposed project would involve loud intrusive activities, including heavy machinery, jackhammers, and earth movers. Requiring construction activities to occur outside the nesting season of April to June would avoid impacts during this critical period. This disturbance is expected to cause moderate, short-term adverse impacts. It would likely result in a *may affect, but not likely to adversely affect* opinion from the U.S. Fish and Wildlife Service.

Construction work would disturb a negligible amount of suitable habitat outside of what is currently disturbed by the facilities. Only about 1.67 acres of habitat disturbance in known CFPO territory would occur out of the monument's overall 330,689 acres. Removal of the road segment and revegetation of disturbed areas would eventually reestablish 0.62 acres of habitat and reduce the overall intensity of adverse impacts to short-term and moderate.

### ***Cumulative Impacts***

Impacts to listed species habitat in and around Organ Pipe Cactus NM are occurring on lands managed by the federal government, state of Arizona and private landowners. These impacts have and could include road construction or improvement; livestock grazing; mineral extraction; construction of homes, businesses and associated utility lines; fences; and development associated with public use of NPS units and wildlife refuges.

The proposed project would occur in an area of localized development. NPS headquarters have been located in this area since the monument was established in 1937. Development, maintenance, and relocation of various facilities (campground, residences, visitor center, and maintenance area) have taken place sporadically over the years. These activities would have impacted wildlife habitat to varying degrees. A number of construction and maintenance projects have taken place over the past several decades in the monument, and additional maintenance and upgrading projects are planned. With the exception of one activity (livestock removal), these have negatively impacted Sonoran Desertscrub and xeroriparian habitats to varying degrees (see page 18 for a list of specific project actions having cumulative impact on special status species in the area).

Actions such as those listed above can disrupt or fragment habitat, displace individuals or otherwise cause stress to animals. To more sensitive species such as the Sonoran pronghorn, these adverse impacts are considered moderate in intensity. To other species, the impact may vary from negligible to moderate. These projects would contribute to cumulative adverse impacts on all special status species.

Pronghorn habitat is adversely impacted by various development actions. Invasion of pronghorn habitat by non-native plants is also likely to be a significant impact. Taken with the impacts of the general increase in human activity, impacts on the skittish Sonoran pronghorn specifically would be cumulatively increased. For additional analysis of cumulative impacts on pronghorn, see the *Draft Supplemental Environmental Impact Statement, Re-Analysis of Cumulative Impacts on the Sonoran Pronghorn* (NPS 2000c) available from the monument. Closing North Puerto Blanco Drive (and other west side roads) at least seasonally would reduce existing adverse cumulative impacts.

Additional impacts on these species are being caused by over 180,000 undocumented illegal aliens and several thousand drug smugglers passing through the area each year. Professional judgment would indicate that the impacts of significantly fewer (primarily law-abiding) visitors to the monument do not substantially add to the cumulative adverse impacts.

The Preferred Alternative involves reconstruction of existing roadways and parking areas, and would have a minor contribution to adverse cumulative impacts resulting from the actions identified above and other past, present and foreseeable future actions on sensitive species or habitat in the region.

### ***Conclusion***

Implementation of the Preferred Alternative would have a short-term minor adverse impact on Sonoran pronghorn antelope, and a short-term moderate adverse impact on cactus ferruginous pygmy-owls. A *may affect, but not likely to adversely affect* opinion from the U.S. Fish and Wildlife Service would be



anticipated. The Preferred Alternative would have no effect on lesser long-nosed bats. Minor adverse cumulative impacts to special status species would also be expected.

There would be no major adverse impact to special status species whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the monument; 2) key to the natural or cultural integrity of the monument or to opportunities for enjoyment of the monument; or 3) identified as a goal in a General Management Plan or other relevant NPS planning documents. Therefore, the NPS determines there would be no impairment of special status species or values as a result of this alternative.

## **Visitor Use and Experience**

Organ Pipe Cactus NM received 329,028 visitors in 2001. This figure is expected to increase in the next two years (NPS Forecast by Park for 2002 and 2003, from the NPS website: [www.nps.gov](http://www.nps.gov)). Because of the monument's location in the hot Sonoran desert, most visitors come in the late winter and spring months, when the temperatures are cooler. The peak visitation season is typically January through March. The "off-season" is in summer. Most monument visitors stop at the visitor center to use the restrooms, view the interpretive exhibits, and/or talk to a park ranger.

### **Impact Intensity**

NPS observation of typical visitation patterns at Organ Pipe NM and available information provide the basis for assessing impacts on visitor use and experience anticipated from implementation of the alternatives. The following represent thresholds of impact intensity for visitor use:

*Negligible* – visitors would likely be unaware of any effects associated with implementation of the alternative. There would be no noticeable change in visitor use and experience or in any defined indicators of visitor satisfaction or behavior.

*Minor* – changes in visitor use and experience would be slight but detectable, yet would not appreciably limit or enhance critical characteristics of the visitor experience. Visitor satisfaction would remain stable.

*Moderate* – few critical characteristics of the desired visitor experience would change and/or the number of participants engaging in any activity would be altered. The visitor would be aware of the effects associated with implementation of the alternative and would likely be able to express an opinion about the changes. Visitor satisfaction would begin to either decline or increase as a direct result of the effect.

*Major* – multiple critical characteristics of the desired visitor experience would change and/or the number of participants engaging in an activity would be altered. The visitor would be aware of the effects associated with implementation of the alternative and would likely express a strong opinion about the change. Visitor satisfaction would markedly decline or increase.

### ***Impacts of No Action***

Visitors to the monument's visitor center and restrooms, and particularly those driving large recreational vehicles, would continue to have difficulty finding a suitable parking space. Pedestrians crossing the parking lot or using the trail to the campground would continue to face possible confusion and safety risks.

### ***Cumulative Impacts***

Other current and foreseeable projects in the area have the potential to affect monument visitation. Designation of Wilderness in the monument has enhanced opportunities for solitude but has excluded many visitors from enjoying the vast majority of the monument. On the other hand, new trails have been opened in the Puerto Blanco Mountains at Red Tanks, Baker Mine, Milton Mine and Senita Basin. The

visitor experience has and will continue to be enhanced through improved interpretive media. This alternative would not involve any actions that would contribute to the cumulative impacts of other past, present and reasonably foreseeable future actions, or to the type or level of visitation in the region.

### ***Conclusion***

Implementing the No Action alternative would cause the continuation of minor, long-term adverse impacts to opportunities for visitors to have a pleasant monument experience. Negligible adverse cumulative impacts would also be expected.

### ***Impacts of the Preferred Alternative***

This alternative would reduce visitor confusion and conflicts by having only a single intersection with Highway 85, and by providing better separation of the headquarters area entrance/exit ways and the Residence Access Road. The new design would include an addition of up to 20 head-in parking spaces and 2 to 4 pull-through parking spaces. Spaces for visitors with mobility impairments would increase from 2 to 4. Signs and pavement markings would clearly direct traffic, further reducing motorist confusion and conflicts. Pedestrian movement conflicts and safety risks would similarly decrease because of the new configuration and well-marked pedestrian walkways.

This alternative would provide long-term moderate benefits to visitor experience by reducing visitor confusion and conflicts, and by providing more parking spaces. Visitor safety would be improved. However, there would be a moderate but short-term adverse impact on traffic flow, parking and pedestrian movement at the visitor center during construction.

### ***Cumulative Impacts***

Other current and foreseeable projects in the area have the potential to affect monument visitation. Designation of Wilderness in the monument has enhanced opportunities for solitude but has excluded many visitors from enjoying the vast majority of the monument. On the other hand, new trails have been opened in the Puerto Blanco Mountains at Red Tanks, Baker Mine, Milton Mine and Senita Basin. Visitor experience has been and will continue to be enhanced through improved interpretive media. This alternative would not attract additional visitors to the monument and, therefore, would not contribute to the cumulative impacts of other past, present and reasonably foreseeable future actions, to the type or level of visitation in the region.

### ***Conclusion***

The Preferred Alternative would result in moderate, short-term adverse impacts to visitor use and experience during the construction phase, and moderate long-term benefits thereafter. Negligible adverse cumulative impacts would be expected.

# CONSULTATION/COORDINATION

U.S. Fish and Wildlife Service - Arizona Ecological Services Field Office

National Park Service - Western Archeological and Conservation Center, Tucson, Arizona

Arizona State Historic Preservation Office (SHPO). In accordance with 36 CFR 800 and the 1995 programmatic agreement among the National Park Service, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, the NPS has informed the Arizona SHPO of proposed project undertakings, and the finding that no historic properties would be affected

Native American Representatives. The NPS has notified affiliated tribal groups (the Hopi Tribe, the Tohono O'odham Nation, Salt River Pima-Maricopa Indian Community, Gila River Indian Community, and Ak-Chin Indian Community) regarding the current project and will provide them a copy of this EA. The NPS will consider and address tribal comments pertaining to project-related issues (i.e. potential project impacts on ethnographic resources, other cultural and natural resources, etc.).

## PREPARERS/REFERENCES

### Preparers

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